

1 Navy Case No. 73348

2 SEMICLOSED BRAYTON CYCLE POWER SYSTEM

3 WITH DIRECT HEAT TRANSFER

4

5 ABSTRACT OF THE DISCLOSURE

6 A semiclosed power system utilizing a Brayton cycle with
7 combustion occurring between diesel fuel and O₂ in direct contact
8 with an inert gas. The inert gas and products of combustion form
9 a heated working fluid which is expanded in a turbine to provide
10 power. The expanded working fluid is then used in a regenerator
11 to heat the cooler, compressed inert gas before the inert gas is
12 transferred to the combustor. The expanded working fluid is
13 cooled by direct contact with seawater causing the steam within
14 the expanded working fluid to condense to water and CO₂ in the
15 working fluid to be dissolved in the water and seawater. The
16 inert gas is separated from the fluids and recycled within the
17 system. The fluids are pumped overboard.